

DISSERTATION

on

A Comparative Study of the Effects of Weight Training Alone and Weight Training with Yoga

Submitted towards the partial fulfilment of

TTC in Yoga

By

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Under the Guidance

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DECLARATION

I, Prachiti Visave, hereby declare that the dissertation entitled " **A Comparative Study of the Effects of Weight Training Alone and Weight Training with Yoga: A Review-Based Analysis**" is an original work prepared by me as a part of the requirements for the **SKM Yoga Teacher Training Course (TTC)**.

I further declare that this dissertation is based on a review and comparative analysis of published research studies.

I certify that this work has not been submitted, either in whole or in part, for the award of any other certificate, diploma, degree, or qualification from any institution.

Place: _____

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ABSTRACT

Physical fitness plays a vital role in maintaining overall health, functional ability, and quality of life. Among the various approaches to improving physical fitness, yoga and weight training are two widely practiced forms of exercise, each offering unique physiological and psychological benefits. While weight training is primarily recognized for improving muscular strength, endurance, and body composition, yoga contributes significantly to flexibility, balance, posture, and overall well-being. Understanding the comparative effects of these two exercise modalities is important for selecting appropriate fitness interventions based on individual goals.

The present study aimed to compare the effects of yoga and weight training on selected components of physical fitness through a review-based analysis of published research. A qualitative review methodology was adopted, and twelve peer-reviewed research studies published between 2001 and 2026 were selected using predefined inclusion and exclusion criteria. The selected studies were analysed with respect to muscular strength, muscular endurance, flexibility, balance, body composition, and cardiorespiratory endurance.

The findings of the review indicate that both yoga and weight training are effective in improving physical fitness; however, their effects differ according to the component of fitness considered. Weight training demonstrated superior improvements in muscular strength, muscular endurance, lean muscle mass, and body composition through progressive overload. In contrast, yoga showed greater benefits in flexibility, balance, posture, body awareness, and stress management. Evidence also suggested that integrating yoga with weight training may provide a more comprehensive approach to enhancing overall physical fitness.

The study concludes that neither yoga nor weight training should be considered superior in all aspects of physical fitness. Instead, both forms of exercise complement each other and can be effectively combined to promote balanced physical development and long-term health.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

1.1.1 Physical Fitness

According to the American College of Sports Medicine (ACSM, 2026), physical fitness is an important aspect of health that enables individuals to perform daily activities efficiently and maintain overall well-being. It helps an individual perform daily activities efficiently without excessive fatigue and maintain sufficient energy for work, recreation, and other responsibilities. Physical fitness is not limited to sports performance; it is essential for people of all age groups to maintain good health and functional ability.

Recent reports have indicated that sedentary lifestyles, increased screen time, and reduced physical activity have contributed to declining fitness levels among young adults (World Health Organization [WHO], 2020). Increased use of technology, reduced physical activity, irregular routines, and sedentary habits have contributed to a decline in overall fitness. As a result, many young individuals experience reduced endurance, poor posture, muscular weakness, and other health-related issues.

Regular participation in physical activity plays a vital role in maintaining physical fitness. Exercise helps improve the efficiency of various body systems and contributes to better physical functioning. Individuals who engage in regular physical activity are generally more capable of performing everyday tasks and adapting to physical demands.

Physical fitness is also closely related to overall well-being. It supports physical health, improves confidence, enhances work capacity, and contributes to a more active lifestyle. For young adults, maintaining an adequate level of fitness is particularly important because it lays the foundation for long-term health and healthy living habits.

Therefore, physical fitness has become an important area of interest in health promotion, sports science, and exercise research. Understanding the factors that influence physical fitness can help in developing effective exercise programmes aimed at improving health and performance.

1.1.2 Components of Physical Fitness

Physical fitness is made up of several components that contribute to an individual's ability to perform physical activities effectively. These components are interrelated and collectively determine the overall fitness level of a person. According to ACSM (2026), the major components of physical fitness include muscular strength, muscular endurance, flexibility, balance, coordination, and body composition.

Muscular Strength:

Muscular strength is defined as the maximum force that a muscle or group of muscles can generate during a single contraction (Baechle & Earle, 2016). It plays an important role in performing daily activities such as lifting, carrying, pushing, and pulling objects. Adequate muscular strength also helps maintain proper posture and supports joint stability. Various forms of resistance exercise, including weight training, are commonly used to improve muscular strength.

Muscular Endurance:

Muscular endurance refers to the ability of a muscle or group of muscles to perform repeated contractions or sustain an activity for an extended period without excessive fatigue (Baechele & Earle, 2016). It enables individuals to sustain physical activity for longer durations and is important for both daily tasks and sports performance. Activities such as cycling, swimming, running, and circuit training are known to enhance muscular endurance.

Flexibility:

Flexibility is defined as the ability of a joint or series of joints to move through an unrestricted and pain-free range of motion (ACSM, 2026). Good flexibility contributes to efficient movement, improved posture, and reduced risk of muscle strain. Limited flexibility may restrict movement and affect physical performance. Regular stretching and mobility exercises can help improve flexibility and maintain joint health.

Balance:

Balance refers to the ability to maintain body stability while stationary or during movement (ACSM, 2026). Good balance is essential for performing daily activities safely and efficiently. It also plays an important role in preventing falls and improving movement control. Balance can be developed through regular practice of activities that challenge postural control and body stability.

Coordination:

Coordination is the ability to integrate body movements smoothly and efficiently while performing a specific task (Sharkey & Gaskill, 2013). It involves the integration of the nervous system and muscular system. Good coordination improves movement accuracy, reaction time, and overall physical performance. Regular participation in physical activities helps enhance coordination skills.

Body Composition:

Body composition refers to the relative proportion of fat mass and lean body mass in the body (ACSM, 2026). It is considered an important indicator of physical fitness and overall health. Maintaining a healthy body composition is associated with improved physical performance and reduced risk of various health problems. Regular exercise and proper nutrition play a significant role in achieving and maintaining a healthy body composition.

These components collectively contribute to overall physical fitness and influence an individual's ability to perform physical activities efficiently. Different forms of exercise may affect these components in different ways. Therefore, understanding the various components of physical fitness is important while evaluating the effectiveness of exercise programmes such as weight training and yoga.

1.1.3 Importance of Physical Fitness in Young Adults

Physical fitness is particularly important during young adulthood, as this period is associated with increased academic, professional, and social responsibilities. The ability to perform daily activities efficiently, maintain energy levels throughout the day, and participate in recreational activities largely depends on an

individual's fitness level. Therefore, maintaining physical fitness during this stage of life is essential for overall health and well-being.

Research indicates that increased sedentary behaviour and reduced participation in physical activity have become common among young adults in recent years (WHO, 2020). A large amount of time is spent sitting in classrooms, offices, or in front of electronic devices, resulting in reduced levels of physical activity. Such habits may gradually affect physical fitness and lead to problems such as reduced endurance, muscular weakness, poor posture, and weight-related issues. These concerns highlight the need for regular participation in physical activity during young adulthood.

Physical fitness also contributes to better functional capacity. Individuals with adequate fitness levels are generally able to perform everyday tasks more effectively and experience less physical fatigue. Improved fitness supports active living and allows individuals to participate more confidently in sports, exercise programmes, and other physical activities.

Apart from physical benefits, fitness has an important influence on psychological well-being. Studies have reported that regular physical activity is associated with improved mental well-being, reduced stress, and enhanced self-confidence (Warburton & Bredin, 2017). These factors are particularly relevant for young adults, who frequently encounter academic pressures, career-related challenges, and changing social environments.

The habits developed during young adulthood often continue into later stages of life. Therefore, maintaining physical fitness at an early age may contribute to healthier lifestyle practices in the future. Promoting physical fitness among young adults is important not only for improving present health status but also for supporting long-term health and quality of life.

1.1.4 Weight Training

According to Baechle and Earle (2016), weight training is a form of exercise that uses resistance to improve muscular strength, endurance, and overall physical fitness. The resistance may be provided through free weights, machines, resistance bands, or an individual's own body weight. Weight training is widely practiced in fitness centres, sports training programmes, and rehabilitation settings for the development and maintenance of physical fitness.

Resistance training produces adaptations in muscles and connective tissues by exposing them to progressive overload during exercise (ACSM, 2026). When muscles are repeatedly exposed to resistance, they gradually adapt by becoming stronger and more capable of performing physical tasks. This process contributes to improvements in overall physical performance and functional capacity.

The American College of Sports Medicine (2026) recognizes resistance training as an important component of fitness programmes for individuals across different age groups. Earlier, it was primarily associated with athletes and bodybuilders; however, it is now commonly incorporated into general fitness programmes. Many individuals engage in weight training to improve strength, enhance physical appearance, increase exercise performance, and support overall health.

Weight training can be performed using various exercise methods depending on the individual's goals and fitness level. These methods may include exercises targeting specific muscle groups as well as programmes designed to improve overall body conditioning. The intensity, frequency, and duration of training are generally adjusted according to individual requirements.

Due to its versatility and effectiveness, weight training is considered an important component of many fitness programmes. It is commonly included in exercise routines aimed at improving physical fitness and supporting long-term health.

1.1.5 Benefits of Weight Training

Weight training is widely recognized as an effective method for improving various aspects of physical fitness. Regular participation in resistance-based exercise produces several physiological adaptations that contribute to improved physical performance and overall health. As a result, weight training has become an important component of fitness programmes for individuals of different age groups and activity levels.

Research has consistently shown that resistance training is one of the most effective methods for improving muscular strength (Westcott, 2012). Repeated exposure to resistance challenges the muscles and stimulates adaptations that increase their force-producing capacity. Improved muscular strength assists individuals in performing daily activities more efficiently and supports better physical performance during exercise and sports.

Regular resistance exercise has been reported to improve muscular endurance and the ability to sustain physical activity for longer durations (ACSM, 2026). When performed consistently, resistance exercises enhance the ability of muscles to sustain repeated contractions over a period of time. Increased muscular endurance enables individuals to participate in physical activities for longer durations with reduced fatigue.

Another important benefit of weight training is its positive influence on body composition. Studies have demonstrated that resistance training helps increase lean body mass and contributes to healthy body composition (Phillips & Winett, 2010). Changes in body composition are often associated with improved physical appearance and enhanced functional capacity.

Resistance training has been associated with improvements in bone health, muscle function, and overall musculoskeletal fitness (ACSM, 2026). Resistance exercises place controlled stress on bones and muscles, which stimulates adaptations that help maintain their strength and integrity. These adaptations contribute to better movement efficiency and support the body's ability to perform physical tasks safely.

In addition to its physical benefits, weight training may contribute to greater confidence and exercise participation. As individuals experience improvements in strength and physical capability, they are often more motivated to engage in regular physical activity and adopt healthier lifestyle practices.

Therefore, weight training is considered an important exercise modality for improving physical fitness and supporting overall health. Its ability to influence multiple aspects of fitness makes it a valuable component of many exercise programmes.

1.1.6 Yoga

Yoga is an ancient discipline that originated in India and has been practiced for several centuries as a means of promoting physical, mental, and spiritual development (Iyengar, 2005). The term "Yoga" is derived from the Sanskrit root "Yuj," meaning to unite or join, symbolizing the integration of body, mind, and spirit (Feuerstein, 2008). Traditionally, yoga is understood as a process that aims to establish connection between the body, mind, and spirit. Over time, yoga has evolved into a widely practiced system for promoting physical, mental, and emotional well-being.

Yoga is not limited to physical postures alone. It encompasses various practices such as asanas (physical postures), pranayama (breathing techniques), meditation (to improve concentration and increase focus), and relaxation methods. These practices are intended to promote self-awareness, improve concentration, and support overall health. Due to its holistic approach, yoga is often regarded as a lifestyle practice rather than merely a form of exercise.

Classical yogic literature describes yoga as a means of achieving balance and self-discipline. Patanjali's Ashtanga Yoga is regarded as one of the most influential systems of yoga and consists of eight interconnected limbs (Patanjali, translated by Swami Vivekananda, 2009). It consists of eight components, namely Yama, Niyama, Asana, Pranayama, Pratyahara, Dharana, Dhyana, and Samadhi. Together, these components provide a comprehensive framework for physical, mental, and spiritual development.

Nowadays, yoga is practiced by individuals of different age groups for a variety of purposes. Some people engage in yoga to improve flexibility and mobility, while others practice it for relaxation, stress management, and overall well-being. The adaptability of yoga has contributed to its growing popularity across different cultures and communities.

Due to its comprehensive nature, yoga has become an important area of study in health sciences, physical education, sports, and wellness research. Its application extends beyond traditional practice settings and is increasingly incorporated into educational institutions, fitness programmes, healthcare settings, and community-based health initiatives.

1.1.7 Benefits of Yoga

Yoga has been practiced for centuries as a means of promoting physical, mental, and emotional well-being. In recent years, it has gained widespread recognition as a valuable health-promoting practice due to its potential benefits for individuals of different age groups and fitness levels. Regular participation in yoga has been associated with improvements in various aspects of health and overall quality of life.

Several studies have reported significant improvements in flexibility and joint mobility following regular yoga practice (Cowen & Adams, 2005). The practice of various asanas involves controlled stretching of muscles and movement of joints through their range of motion. Regular practice may help reduce muscular stiffness and support better movement efficiency in daily activities.

Research suggests that yoga practice can enhance balance, body awareness, and postural control in individuals of different age groups (Schmid et al., 2010). Many yogic postures require individuals to maintain

stability while coordinating body movements. As a result, regular practice may enhance body awareness and improve the ability to maintain balance during both static and dynamic activities.

Yoga has been associated with reduced stress, improved mood, and enhanced psychological well-being (Ross & Thomas, 2010). The combination of physical postures, breathing practices, and relaxation techniques promotes a state of calmness and mental focus. Regular practitioners often report reduced stress levels, improved concentration, and greater emotional stability.

Studies have shown that pranayama practices may improve respiratory efficiency and promote relaxation (Brown & Gerbarg, 2005). Breathing techniques encourage greater awareness of respiration and help develop control over breathing rhythm. These practices are often incorporated into yoga programmes to support relaxation and overall well-being.

In addition to its physical and mental benefits, yoga encourages the development of healthy lifestyle habits. The practice emphasizes self-discipline, mindfulness, and awareness of one's physical and mental state. These qualities may positively influence daily behaviour and contribute to long-term health maintenance.

Due to its holistic nature, yoga is increasingly being incorporated into health promotion programmes, educational settings, fitness centres, and wellness initiatives. Its ability to address multiple dimensions of health has made it a widely accepted practice for enhancing overall well-being.

1.1.8 Yoga and Physical Fitness

Physical fitness is a multidimensional concept that includes strength, endurance, flexibility, balance, coordination, and body composition. Different forms of physical activity influence these components in different ways. Among the various exercise practices, yoga has gained considerable attention for its contribution to overall physical fitness and well-being.

The practice of yoga involves a combination of physical postures, breathing techniques, and relaxation practices that engage various systems of the body. Unlike many exercise programmes that focus primarily on a specific aspect of fitness, yoga incorporates movements that require flexibility, balance, stability, and body awareness. As a result, research findings suggest that regular yoga practice can positively influence flexibility, balance, muscular endurance, and overall fitness (Tran et al., 2001).

One of the most frequently reported outcomes of yoga practice is improved flexibility. The performance of various asanas involves controlled stretching of muscles and movement through different ranges of motion. Regular practice may help maintain joint mobility and support efficient movement patterns during daily activities and physical exercise.

Yoga-based training programmes have been shown to improve balance, coordination, and body control through regular practice of postures and movement patterns (Schmid et al., 2010). Maintaining these positions demands concentration, muscular control, and awareness of body alignment. Such practices may assist in improving movement efficiency and overall functional fitness.

In addition to flexibility and balance, yoga may contribute to muscular endurance by requiring individuals to maintain postures for specific durations. Sustained muscle engagement during various asanas challenges different muscle groups and may support the development of muscular endurance over time.

A growing body of research has examined the relationship between yoga and physical fitness, reporting improvements in several fitness-related components (Ross & Thomas, 2010). Findings from these studies suggest that regular yoga practice can positively influence various fitness components and contribute to overall physical well-being. Consequently, yoga is increasingly being incorporated into fitness programmes designed to support comprehensive physical development.

Therefore, yoga can be viewed as an exercise practice that contributes to multiple dimensions of physical fitness. Its ability to address flexibility, balance, coordination, and muscular endurance makes it a valuable component of programmes aimed at improving overall fitness and health.

1.1.9 Need for Combining Yoga and Weight Training

Physical fitness is influenced by different types of physical activities, and no single form of exercise can improve all aspects of fitness to the same extent. Different exercise methods focus on different components of fitness. Therefore, many fitness professionals and health practitioners recommend a balanced exercise programme that includes a variety of training methods.

Resistance training is widely recommended for improving muscular strength and enhancing physical performance (ACSM, 2026). It helps individuals develop stronger muscles and perform physical tasks more effectively. Due to these benefits, weight training has become a popular form of exercise among young adults. However, many individuals who regularly engage in weight training may pay less attention to other aspects of fitness such as flexibility, balance, and body awareness.

Research has shown that yoga can improve flexibility, balance, body awareness, and psychological well-being (Ross & Thomas, 2010). The practice of various asanas and breathing techniques helps individuals develop better control over body movements and posture. Yoga also encourages a greater awareness of physical and mental health.

Since both weight training and yoga offer complementary benefits, combining them may provide a more balanced approach to physical fitness. While weight training focuses mainly on developing strength, yoga may help improve flexibility balance, mobility, and relaxation. The combination of these practices may contribute to overall fitness more effectively than relying on a single form of exercise.

In recent years, interest in integrated fitness programmes has increased as people seek exercise methods that support multiple aspects of health and fitness. Although numerous studies have investigated yoga and resistance training separately, relatively few studies have examined their combined effects on physical fitness (Polsgrove et al., 2016). Therefore, it is important to examine whether the addition of yoga to a weight training programme leads to further improvements in physical fitness.

The present study has been undertaken to compare the effects of weight training alone and weight training combined with yoga on selected components of physical fitness among young adults. The findings of

this study may help provide a better understanding of the role of yoga as a complementary practice within a fitness programme.

1.2 Statement of the Problem

Physical fitness is an important aspect of health and includes components such as muscular strength, muscular endurance, flexibility, balance, and coordination. Different forms of exercise contribute to these components in different ways. Weight training is commonly used to improve muscle strength and physical performance, whereas yoga is often practiced to improve flexibility, balance, and overall well-being.

Many young adults participate in weight training programmes to enhance their fitness levels. However, there is limited information regarding the differences in the effects that may be achieved when yoga is included as part of a weight training programme. Since both practices offer distinct advantages, it is important to examine whether their combination contributes to overall physical fitness more effectively than weight training alone.

Therefore, the present study aims to compare the effects of weight training alone and weight training combined with yoga on selected components of physical fitness among young adults.

1.3 Need and Significance of the Study

Regular physical activity plays an important role in maintaining health and supporting an active lifestyle. Participation in exercise helps improve strength, endurance, flexibility, balance, and other fitness-related abilities that are necessary for daily life. As awareness about health and wellness continues to grow, people are increasingly adopting different forms of exercise to improve their overall fitness levels.

Resistance training is widely practiced for developing muscular strength and improving exercise performance. Similarly, yoga has gained popularity due to its contribution to flexibility, balance, body awareness, and overall well-being. Although both approaches are commonly included in fitness programmes, they are often practiced independently, and limited attention has been given to their combined influence on overall fitness.

Modern fitness programmes increasingly focus on achieving balanced development rather than improving only one aspect of fitness. Since different exercise methods contribute to different fitness components, combining more than one training approach may provide broader benefits. Understanding the effects of such combinations can help in designing exercise programmes that address multiple aspects of fitness.

The significance of the present study lies in examining whether the inclusion of yoga within a resistance training programme contributes to additional improvements in selected fitness components. The findings may provide useful information for individuals seeking effective methods to improve their overall fitness and maintain a healthy lifestyle.

The study may also be beneficial for yoga practitioners, fitness trainers, physical education professionals, and researchers interested in exercise-based approaches to health promotion. Furthermore, it

may contribute to the existing knowledge related to exercise programming and provide a basis for future studies in this area.

1.4 Objectives of the Study

1. To study the effects of weight training on selected components of physical fitness as reported in existing literature.
2. To study the effects of yoga on selected components of physical fitness as reported in existing literature.
3. To examine the findings reported in published research regarding weight training and yoga in relation to physical fitness.
4. To compare the reported effects of weight training and yoga on selected components of physical fitness.
5. To identify the physical fitness components that may benefit from the inclusion of yoga in a weight training programme.

1.5 Hypothesis

1. Weight training has a positive effect on selected components of physical fitness.
2. Yoga has a positive effect on selected components of physical fitness.
3. Weight training and yoga differ in their effects on selected components of physical fitness.
4. The inclusion of yoga in a weight training programme may provide additional benefits related to flexibility, balance, and overall fitness.

1.6 Delimitations of the Study

The present study is delimited to the following aspects:

1. The study is based on published research articles, journals, books, and other relevant literature related to yoga, weight training, and physical fitness.
2. The study is limited to a comparative analysis of weight training alone and weight training combined with yoga.
3. The study focuses on selected components of physical fitness, namely muscular strength, muscular endurance, flexibility, and balance.
4. The study is confined to literature related to healthy individuals and young adults, wherever applicable.
5. The study does not include the collection of primary data through direct testing, surveys, or experimental intervention.
6. The study is limited to the information available in the selected literature reviewed by the researcher.

1.7 Limitations of the Study

The present study is subject to the following limitations:

1. The study is based entirely on secondary sources of information and does not include primary data collection.
2. The findings of the study depend on the availability and quality of the published literature reviewed.
3. Differences in research design, sample size, duration of training, and assessment methods among the selected studies may influence the comparison of findings.
4. The study is limited to the information reported by the original researchers and does not independently verify the results.
5. The conclusions drawn are based on the selected literature and may not represent all studies related to yoga, weight training, and physical fitness.

1.8 Operational Definitions

For the purpose of the present study, the following terms are defined as follows:

Physical Fitness:

Physical fitness refers to the ability of an individual to perform daily activities efficiently and effectively without excessive fatigue. In the present study, physical fitness includes muscular strength, muscular endurance, flexibility, and balance.

Weight Training:

Weight training refers to a form of exercise that uses resistance to improve muscular strength and overall fitness. The resistance may be provided through free weights, machines, resistance bands, or body weight exercises.

Yoga:

Yoga is a holistic practice that originated in India and includes physical postures (asanas), breathing techniques (pranayama), relaxation practices, and meditation aimed at promoting physical, mental, and emotional well-being.

Muscular Strength:

Muscular strength refers to the ability of a muscle or group of muscles to exert force against resistance during a single effort.

Muscular Endurance:

Muscular endurance refers to the ability of a muscle or group of muscles to perform repeated contractions or sustain an activity for an extended period without excessive fatigue.

Flexibility:

Flexibility refers to the ability of a joint or group of joints to move through an adequate range of motion.

Balance:

Balance refers to the ability to maintain body stability and control while standing, moving, or performing physical activities.

Young Adults:

Young adults refer to individuals who are generally between 18 and 35 years of age, as reported in the studies reviewed for the present investigation.

CHAPTER 2

REVIEW OF LITERATURE

2.1 Introduction

A review of literature is an essential part of any research study because it provides an understanding of the existing knowledge related to the selected topic. It helps the researcher become familiar with previous studies, research methods, important findings, and areas that require further investigation. Reviewing earlier work also helps avoid unnecessary repetition and provides a strong academic foundation for the present study.

The literature review provides an understanding of how previous researchers have approached similar problems, the methods they adopted, and the conclusions they reached. It also helps identify the variables commonly used in previous investigations and the methods adopted to measure them. This understanding is useful while developing the framework of the present study and interpreting the available evidence.

The present dissertation focuses on the comparison of weight training alone and weight training combined with yoga on physical fitness. Before making such a comparison, it is important to examine the findings of earlier studies related to physical fitness, resistance training, yoga, and their influence on different components of fitness. Reviewing these studies helps in understanding the current state of knowledge and identifying areas where further discussion is needed.

For the present study, research articles published in peer-reviewed journals, systematic reviews, meta-analyses, and position statements related to yoga, resistance training, and physical fitness were carefully reviewed. Preference was given to studies conducted on healthy adults and those that assessed components of physical fitness such as muscular strength, muscular endurance, flexibility, balance, and body composition. Authoritative guidelines published by the American College of Sports Medicine (ACSM) were also considered to understand the scientific principles of resistance training.

The review of literature presented in this chapter has been organized into different sections. The first section discusses studies related to physical fitness, followed by studies on weight training and yoga. The chapter also includes studies comparing yoga with other forms of exercise and research that has examined the combined effects of yoga and resistance training. Finally, a summary of the reviewed literature is presented to highlight the existing research and identify the gap that forms the basis of the present dissertation.

2.2 Review of Studies Related to Physical Fitness

Physical fitness has been widely studied because of its close relationship with health, physical performance, and quality of life. Researchers have investigated different forms of physical activity to understand their effects on muscular strength, muscular endurance, flexibility, balance, body composition, and cardiorespiratory fitness. The following studies provide valuable information about the influence of yoga and other exercise programmes on different components of physical fitness.

Study 2.2.1

Tracy and Hart (2013) investigated the effects of an eight-week Bikram yoga programme on physical fitness in healthy young adults. Twenty-one participants completed the intervention, attending regular Bikram yoga sessions throughout the study period. Various measures of physical fitness, including muscular strength, flexibility, body composition, and aerobic fitness, were evaluated before and after the programme.

The results showed noticeable improvements in lower-body strength, flexibility, and body composition following the yoga programme. However, changes in aerobic fitness were limited. The researchers concluded that Bikram yoga may improve selected components of physical fitness, particularly strength and flexibility, even over a relatively short period.

The findings of this study suggest that different styles of yoga may influence physical fitness in different ways. It also highlights that yoga can be an effective form of physical activity for improving several fitness-related components among healthy adults.

Study 2.2.2

Shin (2021) carried out a meta-analysis to evaluate the overall effect of yoga practice on physical fitness. Twelve research studies were included in the analysis, allowing the researcher to examine the combined evidence from multiple investigations.

The analysis found that yoga produced moderate improvements in muscular strength, balance, mobility, and lower-body flexibility. The effects were particularly noticeable in programmes lasting between nine and twelve weeks. Although improvements in cardiorespiratory endurance were less consistent, the overall findings supported the positive role of yoga in enhancing physical fitness.

The results of this meta-analysis strengthen the evidence that yoga is an effective activity for improving several components of physical fitness. Since the conclusions are based on multiple studies rather than a single investigation, they provide strong support for the use of yoga as part of a regular fitness programme.

Overall, the reviewed studies indicate that regular yoga practice contributes positively to several components of physical fitness. Improvements in muscular strength, flexibility, balance, and muscular endurance were consistently reported across different study designs. These findings provide a strong foundation for understanding the relationship between yoga and physical fitness before examining studies related to resistance training.

2.3 Review of Studies Related to Weight Training

Weight training has been extensively studied because of its ability to improve muscular strength, endurance, body composition, and overall physical performance. Over the years, researchers have investigated different resistance training methods to identify the most effective training variables for improving physical fitness. The following studies provide important evidence regarding the role of weight training in enhancing different components of physical fitness.

Study 2.3.1

Ratamess et al. (2009) presented the American College of Sports Medicine (ACSM) Position Stand on progression models in resistance training for healthy adults. Rather than conducting a single experiment, the authors reviewed a large body of scientific research to develop evidence-based recommendations for resistance training.

The position stand discussed important training variables such as exercise selection, training intensity, number of repetitions, number of sets, rest intervals, and training frequency. It emphasized that progressive overload is essential for continuous improvement in muscular strength, muscular endurance, hypertrophy, and power. The report also highlighted that resistance training programmes should be designed according to an individual's training experience and fitness goals.

This position stand serves as an important reference for understanding the scientific principles of weight training. It provides practical guidelines that are widely accepted by researchers, fitness professionals, and exercise practitioners.

Study 2.3.2

Currier et al. (2026) updated the ACSM Position Stand by reviewing evidence from 137 systematic reviews involving more than 30,000 healthy adults. The purpose of the review was to examine how different resistance training variables influence muscle function, hypertrophy, and physical performance.

The review reported that progressive resistance training significantly improves muscular strength, muscle size, muscular endurance, power, balance, and overall physical performance. It also concluded that performing resistance training at least two times per week, using appropriate training loads and progressive increases in resistance, produces consistent improvements in physical fitness. The review further suggested that although different training methods may be effective, regular participation in resistance training is the most important factor for achieving positive results.

Because this review combines evidence from a very large number of scientific studies, it provides strong support for the effectiveness of resistance training in improving several components of physical fitness.

Study 2.3.3

Schoenfeld et al. (2021) reviewed the scientific evidence related to resistance training variables that influence muscle hypertrophy. The review examined factors such as training volume, exercise intensity, frequency, and recovery, and how these variables contribute to muscle development.

The authors reported that muscle hypertrophy is influenced by multiple training factors rather than a single exercise variable. Higher training volume, progressive overload, and consistent participation were identified as important factors contributing to improvements in muscle size and strength. The review also highlighted that training programmes should be individualized according to the needs and experience of the participant.

The findings of this review demonstrate that properly planned resistance training not only increases muscle size but also contributes to improvements in muscular strength and overall physical fitness. These recommendations are valuable for understanding how weight training programmes can be designed effectively.

The studies reviewed in this section consistently show that resistance training is an effective method for improving muscular strength, muscular endurance, body composition, and physical performance. The scientific evidence also indicates that well-planned resistance training programmes can produce positive changes in different components of physical fitness when appropriate training principles are followed. These findings provide an important foundation for comparing weight training alone with weight training combined with yoga in the present dissertation.

2.4 Review of Studies Related to Yoga

Yoga has received considerable attention in scientific research because of its potential to improve different aspects of physical fitness and overall health. Although yoga was traditionally practiced for physical, mental, and spiritual well-being, recent studies have examined its effectiveness using scientific methods. Researchers have investigated how regular yoga practice influences muscular strength, flexibility, balance, endurance, body composition, and physical performance. The following studies highlight the contribution of yoga to different components of physical fitness.

Study 2.4.1

Lau, Yu, and Woo (2015) conducted a controlled clinical trial to examine the effects of a 12-week Hatha yoga programme on physical fitness among Chinese adults. The study included 173 participants who were assigned either to a yoga intervention group or a control group. Participants in the yoga group attended supervised Hatha yoga sessions regularly for twelve weeks, whereas the control group continued their usual daily activities.

The researchers evaluated cardiorespiratory endurance, muscular strength, muscular endurance, and flexibility before and after the intervention. The results showed significant improvements in flexibility, muscular strength, muscular endurance, and cardiorespiratory endurance among participants who practiced yoga. High attendance and adherence were also reported, indicating that the programme was practical and acceptable for the participants.

The findings demonstrate that a structured Hatha yoga programme can improve several components of physical fitness through regular practice. The study also shows that yoga can be successfully included as part of a health promotion programme for adults.

Study 2.4.2

Halder et al. (2015) investigated the influence of selected Hatha yoga practices on healthy individuals belonging to different age groups. Seventy-one participants completed a structured yoga programme consisting of selected yogic postures and breathing techniques for twelve weeks.

The researchers measured body composition, muscular strength, and flexibility before and after the intervention. The study reported significant improvements in grip strength, back-leg strength, flexibility, and some anthropometric measurements. Positive changes were observed in all age groups, although the extent of improvement differed slightly among them.

These observations highlight that regular Hatha yoga practice can improve important fitness-related parameters across different age groups. The study also suggests that yoga may help reduce the decline in physical fitness that normally occurs with increasing age.

Study 2.4.3

Bhunias and Ray (2024) examined the effects of yogasana and yoga breathing manoeuvres on muscular strength, flexibility, and balance among physically active male students. The intervention lasted for twelve weeks and included a combination of yogasana, breathing practices, and meditation.

The researchers recorded hand grip strength, back-leg strength, flexibility, and balance before and after the training programme. The results showed significant improvements in muscular strength, flexibility, and balance. The study further reported that yoga breathing practices helped maintain these improvements during the detraining period.

An important contribution of this study is that it demonstrates the value of combining different components of yoga rather than focusing only on physical postures. It also suggests that yoga breathing techniques may help preserve physical fitness when regular exercise is temporarily reduced.

Study 2.4.4

Prado et al. (2014) investigated the effects of a five-month Hatha yoga programme on body balance in healthy adults. Participants attended sixty-minute yoga sessions three times each week and were compared with a control group that did not participate in yoga training.

Body balance was assessed using both laboratory-based and field-based balance tests before and after the intervention. The results indicated significant improvements in postural control and balance among participants who practiced yoga, whereas the control group showed no meaningful changes.

This study provides further evidence that regular yoga practice has a positive influence on balance and body control. Since balance is an important component of physical fitness, these findings strengthen the view that yoga contributes to overall physical performance in addition to flexibility and strength.

Overall, the evidence reviewed in this section indicates that yoga is an effective method for improving multiple components of physical fitness. Improvements in muscular strength, flexibility, balance, endurance, and body composition have been reported in different populations using a variety of yoga programmes. Collectively, these findings support the inclusion of yoga as an important component of fitness programmes aimed at improving overall physical health.

2.5 Review of Comparative Studies of Yoga and Weight Training

In recent years, researchers have shown growing interest in comparing yoga with other forms of exercise to understand their individual and combined effects on physical fitness and overall well-being. Although many studies have examined yoga and weight training separately, only a limited number of investigations have compared these two approaches directly. The following studies provide useful information about their similarities, differences, and potential benefits.

Study 2.5.1

Gothé and McAuley (2015) conducted a randomized controlled trial to compare the effects of yoga and stretching-strengthening exercises on functional fitness in adults. Participants attended supervised exercise sessions for eight weeks and were evaluated before and after the intervention.

The researchers measured balance, flexibility, muscular strength, mobility, and other indicators of functional fitness. The results showed that both yoga and stretching-strengthening exercises produced significant improvements in physical fitness. Although both programmes were effective, yoga demonstrated comparable benefits in several fitness-related measures.

The findings indicate that yoga can be as effective as conventional exercise programmes in improving functional fitness. This study supports the use of yoga as an alternative form of exercise for maintaining and improving physical fitness.

Study 2.5.2

Taspınar et al. (2014) compared the effects of Hatha yoga and resistance exercise on sedentary adults. Fifty-one participants were randomly assigned to a Hatha yoga group, a resistance exercise group, or a control group. Both intervention groups participated in supervised exercise sessions three times a week for seven weeks.

The study primarily assessed mental health, self-esteem, quality of life, fatigue, and body image. Both the yoga and resistance exercise groups showed significant improvements compared with the control group. While yoga produced greater improvements in fatigue, self-esteem, and quality of life, resistance exercise showed better improvement in body image.

Although this study focused mainly on psychological outcomes, it demonstrates that both yoga and resistance exercise offer meaningful health benefits. The findings also suggest that each form of exercise may contribute differently depending on the outcomes being measured.

Study 2.5.3

Hosseini et al. (2018) examined the effects of home-based yoga and resistance training on individuals with multiple sclerosis. Participants followed an eight-week exercise programme that included either yoga or resistance training under supervised conditions.

The researchers evaluated muscle strength, balance, and functional capacity before and after the intervention. The results showed that resistance training produced greater improvements in muscle strength, whereas yoga was more effective in improving balance and certain aspects of functional ability. Both exercise programmes produced positive outcomes, although the pattern of improvement differed between the two groups.

Since this study was conducted on individuals with multiple sclerosis, its findings cannot be directly applied to healthy adults. However, it provides useful evidence that yoga and resistance training may influence different components of physical fitness and that combining both approaches could offer complementary benefits.

Overall, the comparative studies reviewed in this section suggest that yoga and weight training each have unique advantages. Weight training is generally more effective for improving muscular strength and muscle development, whereas yoga contributes more to flexibility, balance, body awareness, and relaxation. These findings indicate that combining both forms of exercise may provide broader improvements in physical fitness than either approach alone. These findings support the view that yoga and resistance training complement one another and provide the foundation for the comparative analysis presented in the present dissertation.

2.6 Summary of Review of Literature

The review of literature presented in this chapter provided an understanding of the existing research related to physical fitness, weight training, yoga, and comparative exercise programmes. Previous studies have consistently reported that regular physical activity contributes positively to different components of physical fitness, including muscular strength, muscular endurance, flexibility, balance, body composition, and cardiorespiratory endurance. These findings confirm the importance of structured exercise programmes in maintaining overall health and physical performance.

The studies related to weight training demonstrated that resistance training is one of the most effective methods for improving muscular strength, muscle development, and physical performance. Scientific evidence also showed that the effectiveness of weight training depends on appropriate training principles such as progressive overload, suitable training intensity, proper frequency, and consistency. These studies establish weight training as an important component of fitness programmes designed to improve muscular fitness.

Similarly, the studies related to yoga reported improvements in flexibility, balance, muscular endurance, strength, and overall physical fitness following regular practice. Different styles of yoga and various intervention programmes produced positive outcomes across different populations. In addition to physical improvements, several studies also highlighted the role of yoga in promoting relaxation, body awareness, and overall well-being. These findings indicate that yoga offers benefits beyond physical exercise alone.

The comparative studies further suggested that yoga and weight training have different strengths. Weight training was found to be more effective in improving muscular strength and muscle development,

whereas yoga showed greater benefits in flexibility, balance, and body awareness. Some studies also indicated that each form of exercise contributes to physical fitness in its own way, suggesting that combining the two approaches may provide broader overall benefits.

Although a considerable amount of research has been conducted on yoga and weight training separately, relatively few studies have directly examined the combined effects of weight training and yoga on physical fitness among healthy young adults. Most available studies have focused on individual exercise programmes or have investigated specific populations. Therefore, there is still scope to better understand how combining yoga with weight training may influence different components of physical fitness.

The findings of the reviewed literature provide a strong foundation for the present dissertation. They support the need to compare weight training alone with weight training combined with yoga in order to understand their contribution to physical fitness. The available evidence also highlights the importance of further discussion on this topic, which forms the basis of the subsequent chapters of the present dissertation.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

Research methodology provides a systematic approach for conducting a research study. It explains the procedures followed for collecting information, selecting appropriate sources, analysing the available evidence, and presenting the findings in a logical manner. A clearly defined methodology helps ensure that the study is organised, transparent, and based on a structured process.

The present dissertation is based on a comparative review of published research related to weight training, yoga, and physical fitness. Instead of conducting an experimental investigation, the study examines and compares the findings reported in previous scientific studies. This approach makes it possible to understand the existing evidence regarding the effects of weight training alone and weight training combined with yga on different components of physical fitness.

For the purpose of this dissertation, research articles published in peer-reviewed journals, systematic reviews, meta-analyses, and recognised position statements were carefully selected and reviewed. The information obtained from these sources was organised according to the objectives of the study and compared to identify common findings, differences, and areas where further understanding is required.

This chapter describes the research design adopted for the study, the nature of the investigation, the sources of data, the criteria used for selecting research studies, the procedure followed for data collection, the variables considered during comparison, the method of data analysis, and the limitations of the methodology. These procedures provide the framework on which the present dissertation has been developed.

3.2 Research Design

The present dissertation adopts a comparative literature-based research design. The study does not involve the collection of primary data through experiments, surveys, or direct observation. Instead, it is based on a systematic review and comparison of findings reported in previously published research related to weight training, yoga, and physical fitness.

The comparative literature-based research design was selected because it is appropriate for achieving the objectives of the present study. It allows the researcher to examine existing scientific evidence, compare the outcomes reported by different researchers, and understand the similarities and differences between weight training alone and weight training combined with yoga. This approach also helps in identifying patterns and drawing meaningful conclusions from the available literature.

For this dissertation, published research articles, systematic reviews, meta-analyses, and recognised position statements were selected from reliable academic sources. These studies were reviewed carefully and grouped according to the major themes of the dissertation, including physical fitness, weight training, yoga, and comparative exercise programmes. The findings of each study were then examined and compared based on the components of physical fitness that were assessed.

The comparative literature-based research design provides a structured and evidence-based approach for understanding the available scientific knowledge related to the present topic. It also enables the researcher to discuss the findings in a logical manner without conducting an experimental investigation. Therefore, this research design was considered appropriate for achieving the purpose of the present dissertation.

3.3 Nature of the Study

The present dissertation is a comparative literature-based study. It is based entirely on secondary data collected from previously published scientific research rather than information gathered directly from participants. The study compares the findings of earlier investigations to understand the effects of weight training alone and weight training combined with yoga on different components of physical fitness.

The study follows a qualitative approach in which information from selected research papers has been carefully examined, organised, and interpreted. Instead of performing statistical analysis on newly collected data, the available evidence has been analysed to identify common findings, differences, and overall trends reported by various researchers.

The focus of the study is on comparing the influence of different exercise approaches on physical fitness. Particular attention has been given to components such as muscular strength, muscular endurance, flexibility, balance, body composition, and cardiorespiratory endurance whenever these variables were reported in the selected studies.

Since the dissertation is based on published research, the findings and conclusions depend on the quality and relevance of the selected literature. Care was taken to include studies published in recognised journals and official position statements that were directly related to the objectives of the present dissertation. This approach provides a reliable basis for understanding the available scientific evidence on the selected topic.

3.4 Sources of Data

The present dissertation is based entirely on secondary data collected from published academic sources. No primary data were collected through experiments, questionnaires, interviews, or direct observations. The information used in this study was obtained from previously published scientific literature related to weight training, yoga, and physical fitness.

The main sources of data included peer-reviewed research articles, systematic reviews, meta-analyses, and position statements published by recognised organisations in the field of exercise science and health. These sources were selected because they provide scientifically validated information and are widely accepted in academic research.

The selected research papers were obtained from reliable academic databases and search platforms, including Google Scholar and PubMed. Official publications of the American College of Sports Medicine (ACSM) were also referred to for understanding the scientific principles of resistance training. Preference was

given to studies that investigated the effects of yoga, weight training, or both on different components of physical fitness.

The selected literature was carefully reviewed and organised according to the objectives of the present dissertation. Only those studies that were directly relevant to the research topic and provided sufficient information for comparison were included in the review. The collected data formed the basis for analysing and comparing the findings presented in this dissertation.

3.5 Criteria for Selection of Research Studies

The research studies included in the present dissertation were selected based on their relevance to the objectives of the study. Since the dissertation aims to compare the effects of weight training alone and weight training combined with yoga on physical fitness, only studies directly related to these topics were considered.

Preference was given to research articles published in peer-reviewed journals because they undergo scientific review before publication and are considered reliable sources of information. Systematic reviews, meta-analyses, and official position statements published by recognised organisations were also included to obtain comprehensive and evidence-based information.

Studies were selected if they investigated one or more components of physical fitness, such as muscular strength, muscular endurance, flexibility, balance, body composition, or cardiorespiratory endurance. Research involving yoga, resistance training, or a comparison between different exercise programmes was given priority.

Most of the selected studies were conducted on healthy adults or populations that closely matched the purpose of the present dissertation. A few studies involving special populations were included only when they provided valuable comparative information related to yoga and resistance training. Such studies were interpreted carefully while discussing their findings.

Only studies that provided clear information regarding their objectives, methodology, participants, intervention, and findings were included in the review. Research articles that were incomplete, lacked sufficient methodological details, or were not directly related to the objectives of the present dissertation were not considered for analysis.

3.6 Data Collection Procedure

The data for the present dissertation were collected from secondary sources available in published scientific literature. The collection process began by identifying research studies related to physical fitness, weight training, yoga, and comparative exercise programmes. Relevant literature was searched through recognised academic databases and search platforms to obtain reliable and authentic research articles.

After collecting the available studies, each research paper was carefully examined to determine its relevance to the objectives of the dissertation. The title, abstract, methodology, and findings of each study were reviewed before deciding whether it should be included in the literature review. Only those studies that provided meaningful information related to the selected topic were retained for further analysis.

The selected research papers were then organised into different categories based on their primary focus. Separate groups were created for studies related to physical fitness, weight training, yoga, and comparative exercise programmes. This classification made it easier to review the literature systematically and compare the findings presented by different researchers.

Important information extracted from each study included the research objective, participant characteristics, intervention details, duration of the programme, variables measured, methodology, and major findings. This systematic approach helped maintain consistency while reviewing the literature and provided a clear basis for comparing the findings reported in the selected studies.

3.7 Variables Considered in the Comparative Analysis

The present dissertation focuses on comparing the findings reported in previously published studies related to weight training, yoga, and physical fitness. To ensure a systematic comparison, specific variables were identified and examined across the selected research studies.

The primary variables considered in this comparative analysis were the components of physical fitness, including muscular strength, muscular endurance, flexibility, balance, body composition, and cardiorespiratory endurance. These variables were selected because they were the most commonly assessed outcomes in the reviewed research and are directly related to the objectives of the present dissertation.

In addition to physical fitness components, other important characteristics of each study were also considered during the comparison. These included the type of exercise programme, duration of the intervention, frequency of training sessions, characteristics of the participants, research design, and the major findings reported by the researchers. Examining these factors helped in understanding how different exercise programmes influenced physical fitness under different conditions.

The collected information was compared to identify similarities, differences, and overall patterns reported across the selected studies. This comparative approach provided a better understanding of the effects of weight training alone and weight training combined with yoga on different components of physical fitness and formed the basis for the discussion presented in the subsequent chapters.

3.8 Method of Data Analysis

The data collected from the selected research studies were analysed using a comparative descriptive approach. Since the present dissertation is based on secondary data, the analysis focused on examining and comparing the findings reported in previously published research rather than performing statistical analysis on newly collected data.

The information extracted from each study was carefully reviewed and organised according to the objectives of the dissertation. The studies were compared based on the components of physical fitness assessed, the type of exercise programme, the duration of the intervention, participant characteristics, and the major findings reported by the researchers.

After organising the information, similarities, differences, and overall trends reported across the selected studies were identified and interpreted in relation to the objectives of the present dissertation. Particular attention was given to the effects of weight training alone and weight training combined with yoga on muscular strength, muscular endurance, flexibility, balance, body composition, and cardiorespiratory endurance. The overall trends observed across the studies were then interpreted to understand the current scientific evidence related to the research topic.

The findings obtained through this comparative analysis were presented in a systematic manner to support the discussion and conclusions of the present dissertation. This method of analysis helped provide a clear understanding of the available literature and its relevance to the objectives of the study.

3.9 Inclusion and Exclusion Criteria

To ensure that the review remained relevant and focused, specific inclusion and exclusion criteria were followed while selecting the research studies.

Inclusion Criteria

The following studies were included in the current dissertation:

1. Research articles related to weight training, yoga, physical fitness, or comparative exercise programmes.
2. Studies published in peer-reviewed journals.
3. Systematic reviews, meta-analyses, and recognised position statements relevant to the research topic.
4. Studies that assessed one or more components of physical fitness, such as muscular strength, muscular endurance, flexibility, balance, body composition, or cardiorespiratory endurance.
5. Studies that provided clear information regarding their objectives, methodology, participants, intervention, and findings.
6. Research published in the English language.

Exclusion Criteria

The following studies were excluded from the review:

1. Studies not directly related to the objectives of the present dissertation.
2. Articles without sufficient methodological details or complete findings.
3. Conference abstracts, magazine articles, opinion papers, and unpublished reports.
4. Duplicate studies identified during the literature search.
5. Studies for which the full text was not available for detailed review.
6. Research focusing on topics unrelated to physical fitness, yoga, or weight training.

3.10 Limitations of the Methodology

Every research study has certain limitations, and the present dissertation is no exception. Since this study is based on secondary data, the findings and conclusions depend entirely on the quality, accuracy, and availability of previously published research.

The present dissertation does not include the collection of primary data through experiments, surveys, or direct observation. Therefore, the conclusions are based on the results reported by the authors of the selected research studies rather than on independent experimental findings.

The selected studies differed in terms of participant characteristics, duration of the intervention, type of yoga practices, resistance training programmes, and methods used to assess physical fitness. These variations may have influenced the comparison of findings across different studies.

Although every effort was made to include relevant and high-quality research, the review was limited to studies published in English and available through recognised academic sources. Consequently, some relevant studies may not have been included. It is possible that some valuable studies published in other languages or unavailable in full text were not included in the review.

Despite these limitations, the selected literature provided sufficient scientific evidence to achieve the objectives of the present dissertation. The comparative analysis of the available research offers a meaningful understanding of the relationship between weight training, yoga, and physical fitness among young adults.

CHAPTER 4

ANALYSIS AND INTERPRETATION OF DATA

4.1 Introduction

The purpose of this chapter is to present the analysis and interpretation of the information collected from the selected research studies. Since the present dissertation is based on secondary data, the analysis has been carried out by comparing the findings reported in previously published scientific literature. The comparison focuses on the reported effects of weight training and yoga on different components of physical fitness.

To make the analysis systematic, the selected studies have been grouped according to the major themes of the dissertation. The findings have been compared on the basis of participant characteristics, type of exercise programme, duration of the intervention, components of physical fitness assessed, and the major outcomes reported by the researchers. This approach makes it possible to identify similarities, differences, and overall trends across the available literature.

The analysis presented in this chapter aims to provide a clear understanding of the existing scientific evidence related to the research topic. The interpretation of the findings also helps explain how yoga and weight training influence different aspects of physical fitness and forms the basis for the conclusions presented in the final chapter of the dissertation.

4.2 Comparative Analysis of the Selected Studies

Table 4.1 Summary of the Selected Research Studies

Sr. No	Author(s) & Year	Type of Exercise	Participants	Duration	Components of Physical Fitness Assessed	Major Findings
1	Lau, Yu & Woo (2015)	Hatha Yoga	Healthy Adults	12 Weeks	Muscular Strength, Muscular Endurance, Flexibility, Cardiorespiratory Endurance	Significant improvements were observed in flexibility, muscular strength, muscular endurance, and cardiorespiratory endurance following regular Hatha yoga practice.
2	Tracy & Hart (2013)	Bikram Yoga	Healthy Young Adults	8 Weeks	Strength, Flexibility, Body Composition, Aerobic Fitness	Improvements were reported in lower-body strength, flexibility, and body composition, while aerobic fitness

						showed minimal change.
3	Halder et al. (2015)	Hatha Yoga	Healthy Adults	12 Weeks	Grip Strength, Back-Leg Strength, Flexibility, Body Composition	Regular yoga practice improved muscular strength, flexibility, and selected body composition measures across different age groups.
4	Prado et al. (2014)	Hatha Yoga	Healthy Adults	5 Months	Balance	Significant improvement in postural balance was observed after regular yoga practice.
5	Bhunja & Ray (2024)	Yogasana and Breathing Practices	Physically Active Students	12 Weeks	Strength, Flexibility, Balance	Yoga improved muscular strength, flexibility, and balance. Breathing practices also helped maintain fitness during detraining.
6	Shin (2021)	Meta-analysis of Yoga Studies	12 Research Studies	Various	Strength, Balance, Flexibility, Mobility	The overall analysis demonstrated positive effects of yoga on several components of physical fitness.
7	Ratamess et al. (2009)	Resistance Training	Healthy Adults	Review	Strength, Endurance, Hypertrophy	Progressive resistance training effectively improves muscular strength, endurance, hypertrophy, and physical performance.

8	Currier et al. (2026)	Resistance Training	Review of 137 Systematic Reviews	Various	Strength, Hypertrophy, Endurance, Balance	Resistance training consistently improves muscle function, physical performance, and overall fitness.
9	Schoenfeld et al. (2021)	Resistance Training	Evidence-based Review	Various	Strength, Hypertrophy	Training volume, progressive overload, and consistency are important factors influencing muscle development and strength.
10	Gothé & McAuley (2015)	Yoga vs Stretching-Strengthening Exercise	Adults	8 Weeks	Functional Fitness	Yoga produced improvements comparable to conventional stretching-strengthening exercise.
11	Taspınar et al. (2014)	Hatha Yoga vs Resistance Exercise	Sedentary Adults	7 Weeks	Health and Well-being Outcomes	Both exercise programmes produced positive outcomes, although each demonstrated different strengths.
12	Hosseini et al. (2018)	Yoga vs Resistance Training	Multiple Sclerosis Patients	8 Weeks	Strength, Balance, Functional Capacity	Resistance training improved strength, whereas yoga produced greater improvements in balance and functional ability.

Table 4.1 presents a summary of the research studies selected for the present dissertation. The studies included different types of exercise programmes, such as Hatha yoga, Bikram yoga, yogasana with breathing practices, resistance training, and comparative exercise programmes. Although the research designs and participant characteristics varied, all the selected studies focused on one or more components of physical fitness.

The duration of the interventions ranged from seven weeks to five months, while some position statements and systematic reviews summarised evidence from a large number of previously published studies. Most of the intervention-based studies reported positive improvements following regular participation in structured exercise programmes. This indicates that consistent physical activity, irrespective of the exercise method, contributes positively to physical fitness.

A comparison of the selected studies shows that muscular strength and flexibility were the most frequently assessed components of physical fitness. Balance and body composition were also commonly evaluated, whereas cardiorespiratory endurance was measured in comparatively fewer studies. This suggests that previous researchers have mainly focused on musculoskeletal aspects of fitness while investigating the effects of yoga and resistance training.

The review also indicates that weight training and yoga influence physical fitness in different ways. Resistance training was consistently associated with improvements in muscular strength, muscle development, and physical performance. In contrast, yoga demonstrated greater improvements in flexibility, balance, body awareness, and overall functional fitness. Studies that compared different exercise programmes suggested that both approaches have unique advantages and may complement each other when included within the same fitness programme.

Overall, the comparison of the selected studies provides a clear understanding of the current scientific evidence related to the research topic. The findings suggest that combining yoga with weight training has the potential to improve multiple components of physical fitness more effectively than relying on a single form of exercise. This observation forms the basis for the detailed analysis presented in the following sections.

4.3 Comparative Analysis Based on Components of Physical Fitness

4.3.1 Muscular Strength

Table 4.2 Comparative Analysis of Studies Assessing Muscular Strength

Author(s)	Participants	Exercise Programme	Duration	Measurement	Major Findings
Lau, Yu & Woo (2015)	Healthy Chinese adults	Hatha Yoga	12 weeks	Muscular Strength	Participants showed a significant improvement in muscular strength following the 12-week Hatha yoga programme.
Tracy & Hart (2013)	Healthy young adults	Bikram Yoga	8 weeks	Isometric Deadlift Force and	Deadlift strength improved significantly

				Handgrip Strength	after training, whereas handgrip strength did not show a statistically significant improvement.
Halder et al. (2015)	Healthy adults	Hatha Yoga	12 weeks	Grip Strength and Back-Leg Strength	Significant improvements were observed in grip strength and back-leg strength following regular yoga practice.
Bhunias & Ray (2024)	Physically active students	Yogasana and Yogic Breathing	12 weeks	Muscular Strength	Yoga practice resulted in significant improvement in muscular strength and helped maintain strength during the later phase of training.
Ratamess et al. (2009)	Position Stand	Resistance Training	—	Muscular Strength	Progressive resistance training was identified as one of the most effective methods for increasing muscular strength.

Currier et al. (2026)	Overview of systematic reviews	Resistance Training	≥6 weeks	Muscular Strength	Strong evidence supports improvements in muscular strength through structured resistance training programmes using progressive overload.
Schoenfeld et al. (2021)	Position Stand	Resistance Training	—	Muscular Strength	Appropriate training volume, exercise selection, and progressive overload were reported as essential factors for maximising strength development.

Interpretation

Table 4.2 presents the comparative findings related to muscular strength from the selected studies. Both yoga and resistance training demonstrated positive effects on muscular strength, although the magnitude and mechanism of improvement differed.

The yoga intervention studies consistently reported improvements in muscular strength after regular practice. However, the Bikram Yoga study showed that while lower-body strength, assessed through isometric deadlift force, improved significantly, maximal handgrip strength did not change significantly after eight weeks of training. This suggests that the strength adaptations produced by yoga may depend on the muscle groups involved and the type of movements performed during practice.

The resistance training literature reported more consistent improvements in muscular strength. The ACSM Position Stand and the IUSCA recommendations emphasised that progressive overload, appropriate training volume, and regular participation are the primary factors responsible for strength development. These recommendations are supported by extensive evidence from systematic reviews and controlled trials.

Overall, the available evidence indicates that resistance training remains the most effective method for maximising muscular strength. At the same time, regular yoga practice also contributes positively to strength development, particularly through sustained postures and bodyweight movements. Therefore, combining yoga with weight training may provide a broader improvement in physical fitness while preserving the advantages of each exercise approach.

4.3.2 Muscular Endurance

Table 4.3 Comparative Analysis of Studies Assessing Muscular Endurance

Author(s)	Participants	Exercise Programme	Duration	Measurement	Major Findings
Lau, Yu & Woo (2015)	Healthy Chinese adults	Hatha Yoga	12 weeks	Curl-ups and Push-ups	Regular Hatha yoga significantly improved muscular endurance. Participants performed better in curl-up and push-up tests after the intervention compared with the control group.
Bhunias & Ray (2024)	Physically active students	Yogasana and Yogic Breathing	12 weeks	Muscular Endurance	Yoga practice improved muscular endurance and helped maintain endurance during the later phase of the training programme.

Shin (2021)	Meta-analysis (12 studies)	Yoga Intervention	9–12 weeks (most studies)	Muscle Strength and Physical Fitness Components	The overall analysis indicated that yoga produced moderate improvements in muscle strength and functional fitness, supporting its role in enhancing muscular endurance-related performance.
Ratamess et al. (2009)	Position Stand	Resistance Training	—	Muscular Endurance	Resistance training performed with appropriate repetitions, sets, and training frequency effectively improves muscular endurance.
Currier et al. (2026)	Overview of Systematic Reviews	Resistance Training	≥6 weeks	Muscular Endurance	Strong evidence indicates that structured resistance training programmes improve muscular endurance when appropriate training volume and progression are followed.

Interpretation

Table 4.3 presents the findings related to muscular endurance reported in the selected studies. Both yoga and resistance training demonstrated beneficial effects on muscular endurance, although they achieved these improvements through different training methods.

The experimental studies involving yoga consistently reported positive improvements in muscular endurance following regular practice. In the study conducted by Lau et al. (2015), participants who completed a 12-week Hatha yoga programme showed better performance in curl-up and push-up tests, indicating improved endurance of the abdominal and upper-body muscles. Similarly, Bhunia and Ray (2024) observed that regular yoga practice enhanced muscular endurance and also helped maintain physical fitness during the later stages of the training programme.

The resistance training literature also reported consistent improvements in muscular endurance. The ACSM Position Stand and the recommendations by Ratamess et al. emphasised that muscular endurance improves when resistance exercises are performed with appropriate training volume, repetitions, and progressive overload. These findings are supported by evidence collected from multiple systematic reviews and controlled studies.

Overall, the available evidence indicates that both yoga and resistance training are effective methods for improving muscular endurance. Yoga develops endurance through sustained postures and repeated bodyweight movements, whereas resistance training improves endurance by progressively increasing the muscles' capacity to perform repeated contractions against external resistance. Therefore, combining yoga with weight training may provide a more comprehensive improvement in muscular endurance while also supporting other components of physical fitness.

4.3.3 Flexibility

Table 4.4 Comparative Analysis of Studies Assessing Flexibility

Author(s)	Participants	Exercise Programme	Duration	Measurement	Major Findings
Lau, Yu & Woo (2015)	Healthy Chinese adults	Hatha Yoga	12 weeks	Modified Back Saver Sit-and-Reach (MBS) Test	Flexibility improved significantly after the intervention. In men, left-leg flexibility increased from 39.99 ± 11.47 cm to 46.09 ± 11.20 cm, while right-leg flexibility increased from 39.66 ± 11.80 cm to 46.06 ± 11.22 cm. Similar improvements were observed among women.
Tracy & Hart (2013)	Healthy young adults	Bikram Yoga	8 weeks	Sit-and-Reach and Shoulder Flexibility	Participants demonstrated significant improvements in lower back and hamstring flexibility. The greatest improvements were

					observed among individuals with lower baseline flexibility.
Halder et al. (2015)	Healthy adults	Hatha Yoga	12 weeks	Sit-and-Reach Test	Regular Hatha yoga produced significant improvements in flexibility across different age groups.
Bhunja & Ray (2024)	Physically active students	Yogasana and Yogic Breathing	12 weeks	Body Flexibility	Significant improvement in body flexibility was observed after yoga practice. The study also reported that flexibility was better maintained during the later phase of training.
Shin (2021)	Meta-analysis (12 studies)	Yoga Intervention	Mostly 9–12 weeks	Lower Body Flexibility	The meta-analysis reported moderate positive effects of yoga on lower-body flexibility across the included studies.

Interpretation

Table 4.4 presents the findings related to flexibility reported in the selected studies. Among all the components of physical fitness reviewed in this dissertation, flexibility showed the most consistent improvement following regular yoga practice.

The 12-week Hatha yoga intervention conducted by Lau et al. (2015) demonstrated clear improvements in lower back and hamstring flexibility. Both male and female participants showed increases of approximately six centimetres in the Modified Back Saver Sit-and-Reach test, whereas the control group showed little or no improvement. These findings provide strong evidence that regular yoga practice enhances flexibility through repeated stretching and controlled movement patterns.

The Bikram Yoga study by Tracy and Hart (2013) also reported significant improvements in lower back, hamstring, and shoulder flexibility after eight weeks of training. The researchers further observed that participants with lower initial flexibility experienced the greatest gains, suggesting that yoga may be particularly beneficial for individuals with limited flexibility at baseline.

Similar findings were reported by Halder et al. (2015), Bhunia and Ray (2024), and the meta-analysis conducted by Shin (2021), all of which concluded that yoga is effective in improving flexibility across different populations and training durations.

Overall, the available evidence consistently indicates that yoga is highly effective in improving flexibility. Compared with resistance training, which primarily focuses on muscular strength and muscle development, yoga provides greater improvements in joint mobility and range of motion. Therefore, incorporating yoga into a weight training programme may help achieve more balanced improvements in overall physical fitness by enhancing flexibility while maintaining strength gains.

4.3.4 Balance

Table 4.5 Comparative Analysis of Studies Assessing Balance

Author(s)	Participants	Exercise Programme	Duration	Measurement	Major Findings
Prado et al. (2014)	Healthy adult males	Hatha Yoga	5 months	Balance Rehabilitation Unit (BRU), Limit of Stability (LOS), Centre of Pressure (COP), Velocity of Sway (VOS), and Field Balance Tests	Significant improvements were observed in postural balance, stability, and body control after the yoga intervention. Improvements were found in both laboratory-based and field balance assessments.

Bhunias & Ray (2024)	Physically active students	Yogasana and Yogic Breathing	12 weeks	Static Balance	Significant improvement in balance was reported following regular yoga practice. Balance was also better maintained during the later phase of training.
Hosseini et al. (2018)	Individuals with Multiple Sclerosis	Hatha Yoga and Resistance Training	8 weeks	Open-eye Balance, Closed-eye Balance, Single-leg Balance	Both interventions improved balance; however, the Hatha yoga group demonstrated greater improvement in balance performance than the resistance training group.
Shin (2021)	Meta-analysis (12 studies)	Yoga Intervention	Mostly 9–12 weeks	Balance	The meta-analysis reported moderate positive effects of yoga on balance across the included studies.
Currier et al. (2026)	Overview of Systematic Reviews	Resistance Training	≥6 weeks	Physical Function and Balance	Resistance training contributed to improvements in balance and physical function, particularly

					when structured progressive programmes were followed.
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Interpretation

Table 4.5 presents the findings related to balance reported in the selected studies. The available evidence indicates that both yoga and resistance training contribute positively to balance; however, yoga consistently demonstrated greater improvements in postural control and body stability.

Prado et al. (2014) conducted one of the most comprehensive assessments of balance by using laboratory-based measurements such as the Balance Rehabilitation Unit, Limit of Stability, Centre of Pressure, and Velocity of Sway, along with practical field balance tests. Following five months of regular Hatha yoga practice, participants showed significant improvements in postural stability and balance performance. These findings suggest that yoga enhances balance by improving body awareness, neuromuscular coordination, and postural control.

Similar improvements were reported by Bhunia and Ray (2024), who observed enhanced balance after twelve weeks of yogasana and yogic breathing practices. The meta-analysis conducted by Shin (2021) further supports these findings by demonstrating that yoga produces consistent improvements in balance across different populations and intervention programmes.

The comparative study by Hosseini et al. (2018) reported that both resistance training and yoga improved balance. However, participants in the yoga group demonstrated greater improvement in balance-related performance than those in the resistance training group. This suggests that although resistance training indirectly improves balance by increasing muscular strength, yoga specifically targets body alignment, stability, and coordinated movement.

Overall, the available evidence indicates that yoga is particularly effective for improving balance and postural control. Therefore, incorporating yoga into a weight training programme may provide additional benefits by enhancing stability, coordination, and overall physical fitness while maintaining the strength gains achieved through resistance training.

4.3.5 Body Composition

Table 4.6 Comparative Analysis of Studies Assessing Body Composition

Author(s)	Participants	Exercise Programme	Duration	Measurement	Major Findings
Tracy & Hart (2013)	Healthy young adults	Bikram Yoga	8 weeks	Body Mass, Body Fat Percentage, Lean Mass, Waist-to-Hip Ratio	Body fat percentage decreased from $28.4 \pm 6.0\%$ to $27.3 \pm 6.3\%$ after the intervention. Lean mass showed a positive trend, while body mass and waist-to-hip ratio remained largely unchanged.
Halder et al. (2015)	Healthy adults	Hatha Yoga	12 weeks	Body Composition	Regular Hatha yoga produced significant improvements in selected body composition measures following the intervention programme.
Currier et al. (2026)	Overview of Systematic Reviews	Resistance Training	≥ 6 weeks	Lean Muscle Mass and Body Composition	Strong evidence indicates that structured resistance training increases lean muscle mass and improves overall body composition through progressive overload and

					regular participation.
Schoenfeld et al. (2021)	Position Stand	Resistance Training	—	Muscle Hypertrophy and Body Composition	Appropriate resistance training volume, intensity, and exercise selection were identified as important factors for improving muscle hypertrophy and body composition.

Interpretation

Table 4.6 presents the findings related to body composition reported in the selected studies. Although fewer studies examined body composition than other components of physical fitness, the available evidence indicates that both yoga and resistance training produce favourable changes.

The Bikram Yoga study conducted by Tracy and Hart (2013) demonstrated a reduction in body fat percentage following eight weeks of regular practice. However, body mass and waist-to-hip ratio did not change significantly during the intervention period. These findings suggest that relatively short-term yoga practice may improve body composition without producing substantial changes in overall body weight.

The Hatha yoga study by Halder et al. (2015) also reported improvements in body composition after twelve weeks of regular practice, indicating that consistent yoga training contributes positively to physical fitness beyond improvements in flexibility and balance.

The resistance training literature provided stronger evidence for changes in body composition. The Currier et al. (2026), concluded that progressive resistance training consistently increases lean muscle mass and improves body composition when appropriate training principles are followed. Similarly, Schoenfeld et al. (2021) emphasised that muscle hypertrophy and improvements in body composition depend on factors such as training volume, intensity, exercise selection, and progressive overload.

Overall, the available evidence suggests that both yoga and resistance training contribute to improved body composition, although their effects differ. Resistance training appears to be more effective for increasing lean muscle mass and promoting muscular development, whereas yoga contributes to modest reductions in body fat while supporting overall physical fitness. Therefore, combining yoga with weight training may provide a more comprehensive approach to improving body composition and maintaining long-term health.

4.3.6 Cardiorespiratory Endurance

Table 4.7 Comparative Analysis of Studies Assessing Cardiorespiratory Endurance

Author(s)	Participants	Exercise Programme	Duration	Measurement	Major Findings
Lau, Yu & Woo (2015)	Healthy Chinese adults	Hatha Yoga	12 weeks	Resting Heart Rate and VO ₂ max	Significant improvement in cardiorespiratory endurance was observed. In men, mean VO ₂ max increased from 32.99 ± 6.77 to 35.59 ± 6.63 mL/kg/min, while in women it increased from 26.35 ± 5.51 to 27.68 ± 5.25 mL/kg/min after the intervention.
Tracy & Hart (2013)	Healthy young adults	Bikram Yoga	8 weeks	Aerobic Fitness	Improvements in aerobic fitness were minimal and did not reach statistical significance after the eight-week intervention.
Shin (2021)	Meta-analysis (12 studies)	Yoga Intervention	Mostly 9–12 weeks	Cardiorespiratory Endurance	The meta-analysis reported no significant overall improvement in cardiorespiratory endurance following yoga interventions, although positive effects were observed for strength, balance, and flexibility.

Currier et al. (2026)	Overview of Systematic Reviews	Resistance Training	≥ 6 weeks	Physical Performance	Resistance training contributes substantially to muscular fitness and physical performance, but improvements in cardiorespiratory endurance are generally achieved when aerobic training is included alongside resistance exercise.
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Interpretation

Table 4.7 presents the findings related to cardiorespiratory endurance reported in the selected studies. Compared with the other components of physical fitness, the evidence for improvements in cardiorespiratory endurance was less consistent.

The 12-week Hatha yoga intervention conducted by Lau et al. (2015) demonstrated significant improvements in cardiorespiratory endurance, as reflected by increased VO_2max values and reduced resting heart rate following the intervention. These findings indicate that regular yoga practice can produce favourable cardiovascular adaptations when performed consistently over an extended period.

In contrast, Tracy and Hart (2013) reported only minimal changes in aerobic fitness after eight weeks of Bikram yoga. Likewise, the meta-analysis conducted by Shin (2021) concluded that, although yoga consistently improves muscular strength, flexibility, balance, and mobility, its overall effect on cardiorespiratory endurance was not statistically significant across the included studies.

The available evidence therefore suggests that the effect of yoga on cardiorespiratory endurance depends on factors such as the style of yoga practised, the intensity of the sessions, the duration of the intervention, and the characteristics of the participants. Resistance training primarily improves muscular fitness, while substantial improvements in cardiorespiratory endurance generally require exercise programmes that include an aerobic component.

Overall, yoga may contribute to improvements in cardiorespiratory endurance under appropriate training conditions, but the evidence is less consistent than for flexibility, balance, or muscular strength. Therefore, combining weight training with yoga and other aerobic activities may provide a more comprehensive improvement in overall physical fitness than relying on a single mode of exercise.

4.4 Comparative Analysis of Weight Training and Yoga on Physical Fitness

Table 4.8 Comparative Comparison of Weight Training and Yoga

Component of Physical Fitness	Weight Training	Yoga
Muscular Strength	Produces substantial improvements through progressive overload and resistance exercises.	Improves muscular strength through sustained postures and bodyweight movements.
Muscular Endurance	Improves endurance by increasing the muscles' ability to perform repeated contractions against resistance.	Improves endurance through sustained muscle engagement during yoga postures.
Flexibility	Limited improvement unless specific stretching exercises are included.	Produces significant improvements in flexibility through regular stretching and controlled movements.
Balance	Improves balance indirectly through increased muscular strength and stability.	Produces greater improvements in balance through enhanced body awareness, coordination, and postural control.
Body Composition	Increases lean muscle mass and improves body composition through muscle hypertrophy.	Contributes to modest reductions in body fat while supporting overall physical fitness.
Cardiorespiratory Endurance	Limited improvement unless combined with aerobic training.	Improvements vary depending on the style, intensity, and duration of yoga practice.

Interpretation

Table 4.8 presents a comparison of the effects of weight training and yoga on different components of physical fitness based on the selected research studies. The findings indicate that both exercise approaches contribute positively to physical fitness; however, each demonstrates greater effectiveness in different areas.

Weight training consistently produced greater improvements in muscular strength, muscular endurance, and lean muscle development. These improvements are primarily attributed to progressive overload, increased resistance, and structured training programmes that stimulate muscular adaptation. Consequently, resistance training is widely recognised as one of the most effective methods for increasing muscular fitness.

Yoga demonstrated greater improvements in flexibility, balance, and body awareness. The selected studies consistently reported that regular yoga practice enhances joint mobility, postural stability, coordination, and movement efficiency through controlled stretching, sustained postures, and breathing techniques. These benefits complement the adaptations produced through resistance training.

With respect to body composition, both exercise approaches produced favourable outcomes. Resistance training showed greater potential for increasing lean muscle mass, whereas yoga contributed to modest reductions in body fat while promoting overall physical fitness. The available evidence related to cardiorespiratory endurance was less consistent, indicating that improvements depend on the type of exercise programme, training intensity, and duration of practice.

Overall, the comparative analysis indicates that neither weight training nor yoga alone addresses every component of physical fitness to the same extent. Weight training primarily develops muscular fitness, whereas yoga contributes more effectively to flexibility, balance, and functional movement. Therefore, integrating yoga with a structured weight training programme may provide a more balanced and comprehensive approach to improving overall physical fitness.

4.5 Discussion of Findings

The present dissertation examined the available scientific evidence regarding the effects of weight training and yoga on different components of physical fitness. The findings obtained from the selected studies indicate that both forms of exercise contribute positively to physical fitness, although the extent of improvement varies according to the specific component being assessed.

The comparative analysis showed that weight training was consistently associated with greater improvements in muscular strength, muscular endurance, and body composition. The reviewed studies explained that these improvements result from progressive overload, increased muscular activation, and regular participation in structured resistance training programmes. These findings support the well-established role of resistance training in improving muscular fitness and physical performance.

The findings also demonstrated that yoga was particularly effective in improving flexibility and balance. Across the selected intervention studies, regular yoga practice increased joint mobility, enhanced postural stability, and improved body awareness. These adaptations are mainly achieved through sustained postures, controlled movements, and breathing techniques that require coordination and stability. The consistency of these findings across different studies strengthens the evidence supporting the role of yoga in improving these components of physical fitness.

The findings related to body composition and cardiorespiratory endurance were less consistent. While resistance training generally produced greater improvements in lean muscle mass and muscular development, yoga contributed to modest improvements in body composition, particularly when practised regularly over several weeks. Similarly, some studies reported improvements in cardiorespiratory endurance following yoga interventions, whereas others observed little or no significant change. These differences may be influenced by factors such as programme duration, exercise intensity, participant characteristics, and the specific style of yoga practised.

Overall, the comparative analysis suggests that neither weight training nor yoga alone provides the greatest improvement in every component of physical fitness. Instead, each approach offers distinct advantages that complement one another. Weight training primarily develops muscular fitness, whereas yoga enhances

flexibility, balance, and movement efficiency. Therefore, integrating yoga with a structured weight training programme may provide a more comprehensive approach to improving overall physical fitness than relying on a single mode of exercise.

The findings discussed in this chapter are consistent with the objectives of the present dissertation and provide a scientific basis for the conclusions presented in the following chapter.

4.6 Major Findings of the Study

Based on the comparative analysis of the selected research studies, the following major findings were observed:

1. Both weight training and yoga contribute positively to the improvement of physical fitness, although their effects differ across various fitness components.
2. Weight training was found to be more effective in improving muscular strength, muscular endurance, and lean muscle development when performed using appropriate resistance, progressive overload, and regular training.
3. Yoga demonstrated greater effectiveness in improving flexibility and balance through regular practice of postures, controlled movements, and breathing techniques.
4. Both exercise approaches produced favourable changes in body composition. However, resistance training showed greater potential for increasing lean muscle mass, while yoga contributed to modest improvements in body composition and overall physical fitness.
5. The evidence related to cardiorespiratory endurance was inconsistent. Some studies reported positive improvements following yoga practice, whereas others found little or no significant change. The outcomes appeared to depend on factors such as programme duration, exercise intensity, and participant characteristics.
6. The comparative analysis indicated that weight training and yoga complement each other by improving different components of physical fitness.
7. The overall findings suggest that incorporating yoga into a structured weight training programme may provide a more balanced approach to improving physical fitness than relying on a single mode of exercise.
8. The reviewed literature supports the importance of selecting exercise programmes according to individual fitness goals while recognising that a combination of different exercise methods may produce broader health and fitness benefits.

CHAPTER 5

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary

The present dissertation was undertaken to compare the effects of weight training and yoga on different components of physical fitness. The study focused on understanding how these two forms of exercise influence muscular strength, muscular endurance, flexibility, balance, body composition, and cardiorespiratory endurance based on evidence available in published scientific literature.

The dissertation began with an introduction to the concepts of physical fitness, weight training, and yoga. The objectives, significance, limitations, and operational definitions related to the study were presented in Chapter 1. This chapter established the background and purpose of the research.

Chapter 2 reviewed the available literature related to physical fitness, weight training, yoga, and comparative exercise programmes. Research findings from peer-reviewed journals, systematic reviews, meta-analyses, and position statements were examined to understand the existing scientific evidence. The review indicated that both weight training and yoga contribute positively to physical fitness, although each exercise approach demonstrates greater effectiveness for different fitness components.

Chapter 3 described the research methodology adopted for the study. Since the dissertation was based on secondary data, a comparative literature-based research design was followed. Relevant research papers were selected using predefined inclusion and exclusion criteria, and the available evidence was organised and analysed according to the objectives of the study.

Chapter 4 presented the comparative analysis and interpretation of the selected research studies. The findings showed that weight training was particularly effective in improving muscular strength, muscular endurance, and lean muscle development. Yoga demonstrated greater effectiveness in improving flexibility and balance, while both exercise approaches contributed positively to body composition and overall physical fitness. The findings related to cardiorespiratory endurance were less consistent and appeared to depend on the type and duration of the exercise programme.

Based on the overall analysis, the dissertation indicates that weight training and yoga complement one another by improving different components of physical fitness. The available scientific evidence suggests that incorporating yoga into a structured weight training programme may provide a more balanced approach to improving overall physical fitness than relying on either exercise method alone.

5.2 Conclusions

Based on the comparative analysis of the selected research studies, the following conclusions were drawn:

1. Weight training and yoga both are effective for health but their effects differ according to specific component of physical fitness.
2. Weight training effective in mostly muscular strength, muscle development.
3. Yoga is more effective in flexibility, balance, posture, breathing, body awareness, concentration.
4. Both positively contribute to body composition.
5. Each approach provides unique benefits that contribute to overall physical fitness.
6. The combination of yoga and weight training may lead to greater improvements in physical fitness combined to either form of exercise separately.

5.3 Recommendations

Based on the findings of the present dissertation, the following recommendations are suggested:

1. Both weight training and yoga are effective methods for improving physical fitness. However, their effects differ according to the specific component of physical fitness being assessed.
2. Weight training is more effective in improving muscular strength, muscular endurance, and lean muscle development because it applies progressive overload and structured resistance exercises that promote muscular adaptation.
3. Yoga is more effective in improving flexibility, balance, postural control, and body awareness through regular practice of postures, controlled movements, and breathing techniques.
4. Both weight training and yoga contribute positively to body composition. Resistance training primarily increases lean muscle mass, while yoga supports overall physical fitness and contributes to modest improvements in body composition.
5. The evidence related to cardiorespiratory endurance is less consistent. The available literature suggests that improvements depend on factors such as the type of exercise programme, duration of practice, exercise intensity, and participant characteristics.
6. The findings indicate that weight training and yoga complement each other rather than serving as alternative forms of exercise. Each approach provides unique benefits that contribute to overall physical fitness.
7. Based on the reviewed scientific literature, incorporating yoga into a structured weight training programme may provide a more balanced and comprehensive approach to improving physical fitness than relying on either exercise method alone.

5.4 Scope for Future Research

The present dissertation is based on a comparative review of published research studies related to weight training, yoga, and physical fitness. Although the available literature provided valuable information, there is considerable scope for future research in this area.

Future studies may be conducted using primary data collected from different population groups to examine the combined effects of weight training and yoga under controlled conditions. Such studies may provide a better understanding of how these exercise methods influence various components of physical fitness in different age groups and fitness levels.

Researchers may also investigate the long-term effects of combining yoga with structured weight training programmes. Most of the studies reviewed in the present dissertation were conducted over relatively short intervention periods. Longer studies may provide additional information regarding the sustainability of the observed improvements in physical fitness.

Future research may compare different styles of yoga, such as Hatha Yoga, Ashtanga Yoga, or Vinyasa Yoga, when combined with resistance training. Similar studies may also examine different resistance training programmes to determine which combinations produce the most favourable outcomes for specific components of physical fitness.

Further research may include larger sample sizes and participants from different genders, occupations, and levels of physical activity. Such studies may improve the generalisability of the findings and provide more comprehensive evidence regarding the relationship between weight training, yoga, and physical fitness.

The present dissertation provides a foundation for future comparative and experimental research in this field. Continued scientific investigation will help improve the understanding of how different exercise approaches can be used individually or in combination to promote overall physical fitness and long-term health.

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